



Radiation Effects Facility

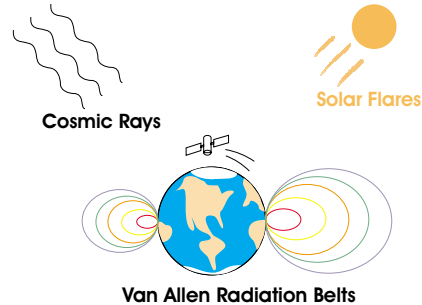
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Solar flares, cosmic rays, and the Earth's Van Allen Belts serve as natural sources of space radiation. Such ionizing radiation can “upset” the normal function of semiconductor components found in orbiting communications satellites and space vehicles.



Sources of Natural Space Radiation

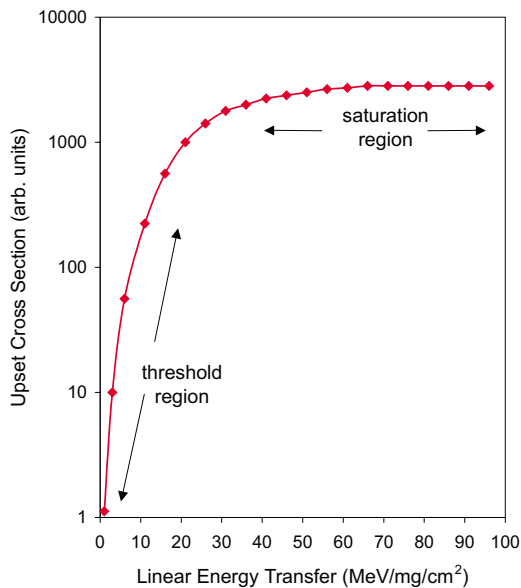
The rates at which semiconductor devices “upset” can be measured in the laboratory with beams of high energy ions, such as those accelerated at Texas A&M for the Radiation Effects Facility (REF). These rates are used to qualify the components used in space radiation environments.

The combination of the Texas A&M ECR ion source and the K500 superconducting cyclotron provides REF experimenters with 40 MeV protons and heavy ions at energies as high as 55A MeV.

The REF end station consists of computer controlled device staging, dosimetry and energy degrader systems and device testing locations in both air and vacuum.

Since 1995, the REF has had over 5000 hours of use by over 50 different commercial and government agencies.

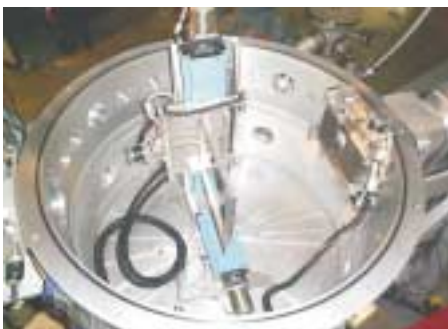
Upset Cross Section



In-air Testing Station



Vacuum Chamber



LET and Range of Ions in Silicon

